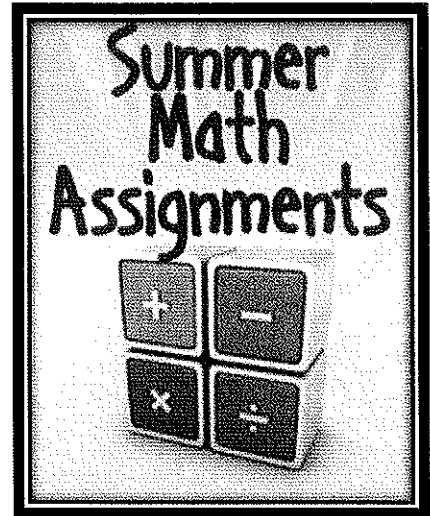


Name: _____

Class: _____

GRADE 8

MATH SUMMER PACKET



Welcome to the 8th Grade!

1. Email Ram at rambuena@gmail.com from August 15-September 7, 2014

Write about the following:

- a. Your name, birthday
- b. How you spent your summer time
- c. Name of a parent, email address, and cellphone number
- d. What do you expect from math this coming September? What activities/work are you looking forward to?

You get your FIRST HAPPY SLIP (Reward system) if you email Ram before the first day of school, September 8th.

2. Your first homework is an ASSESSMENT of what you know so far about basic skills in math.

Directions:

- a. Answer the 50 problems by showing work on a separate/white paper. You may go online for help or ask family members on how to do the work.
- b. Bubble your answer on the Bubble sheet provided.
- c. The answer sheet should be signed by your parent.
- d. Ram will collect the bubble sheet with all the papers where you showed work. Staple them together. Ram will not collect the sheets with questions.
- e. Submit this work by September 9

NOTE:

Go online for details about Middle School supply list, homework packets, and information about your subjects and teachers

www.trcsmshw.wikispaces.com

A handwritten signature in cursive script that reads "Ram".

NAME _____

PARENT'S SIGN: _____

Multiple-Choice Answer Sheet

NOTE: STAPLE YOUR WORK
BELOW THIS PAGE

Test Title

HW #1

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. (A) (B) (C) (D)
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42. (A) (B) (C) (D)
43. (A) (B) (C) (D)
44. (A) (B) (C) (D)
45. (A) (B) (C) (D)
46. (A) (B) (C) (D)
47. (A) (B) (C) (D)
48. (A) (B) (C) (D)
49. (A) (B) (C) (D)
50. (A) (B) (C) (D)

Placement Test

1. What is the mean for the set of data shown below?

27, 32, 14, 19, 24, 26, 22, 32, 29

- A 18 C 26
B 25 D 32

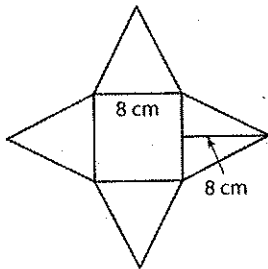
2. Max drove 460 miles in 8 hours at a constant speed. How long would it take him to drive 661.25 miles at that speed?

- A 10.5 C 11.5
B 11 D 12

3. A mural inspired by a photograph measures 108 inches by 180 inches. The scale factor is 12. What are the dimensions of the photograph?

- A 8 in. \times 14 in.
B 7.5 in. \times 10.5 in.
C 9 in. \times 10.5 in.
D 9 in. \times 15 in.

4. The net of a square pyramid is shown below. What is the surface area of the pyramid?

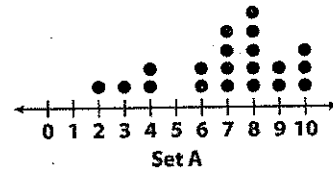
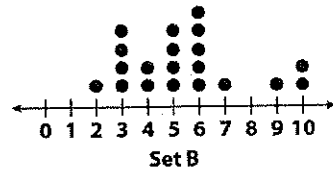


- A 100 cm^2 C 172 cm^2
B 136 cm^2 D 192 cm^2

5. A gallon of paint covers 400 square feet. How many square feet will $2\frac{3}{8}$ gallons of paint cover?

- A 950 ft^2
B 986 ft^2
C $1,040 \text{ ft}^2$
D $1,068 \text{ ft}^2$

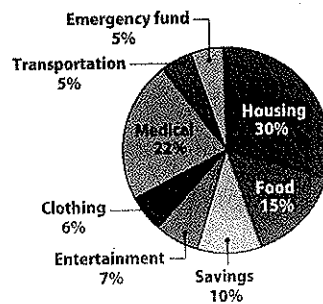
6. Based on the dot plots below, which of the following is a true statement?



- A Set B is less symmetrical than Set A.
B Set B has the lesser mean.
C Set A has the greater range.
D Set A has the lesser mode.
7. A deli makes sandwiches to order. A customer can choose ham, turkey, or roast beef, and have it served on white, wheat, or rye bread. They can also choose mustard, mayonnaise, ketchup, or hot sauce. How many different sandwiches of one meat, one bread, and one condiment can a customer order?

- A 28 C 36
B 32 D 45

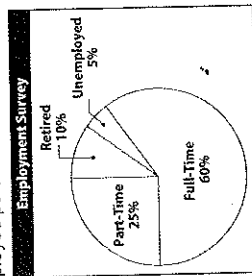
8. The Jenkins family's monthly budget is shown in the circle graph. The family has a monthly income of \$4800. How much money do they spend on transportation each month?



- A \$200 C \$240
B \$220 D \$288

Placement Test

9. The circle graph shows the results of an employment survey of 900 people. How many of the people surveyed are employed part-time?



10. Which of the following is a random sample?
- A 225 C 450
B 320 D 810
- A A survey company asks radio station listeners to call in and tell their favorite radio station.
B 150 customers at an Italian restaurant are asked about their favorite food.
C A professional polling company surveys voters about who they would like to be elected as senator.
D Cameron emails students to find out how many have a computer at home.

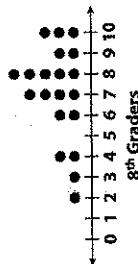
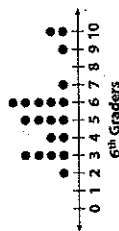
11. In a circle of any size, what ratio does π represent?
- A radius : diameter
B circumference : area
C circumference : radius
D circumference : diameter

12. The probability of spinning an even number on a spinner is 0.4. What is the probability of **not** spinning an even number, expressed as a percent?
- A 90% C 40%
B 60% D 6%

17. Simplify $\frac{1}{3}(9a + b) - \frac{1}{2}(4a + 2b)$.
- A $a - \frac{2}{3}b$ C $2a + \frac{1}{2}b$
B $a + \frac{1}{3}b$ D $2a - b$

18. The volume of a rectangular prism is 240 cubic centimeters. A rectangular pyramid has the same length, width, and height as the prism. What is the volume of the pyramid?
- A 720 cm³ C 80 cm³
B 360 cm³ D 40 cm³

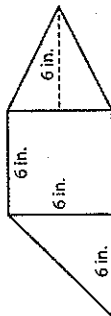
19. Tim took a random survey of 20 sixth graders and 20 eighth graders. He asked how many hours a week each played sports. His data is shown in the two dot plots below.



- What is the difference between the median number of hours that 6th graders play sports and the median number of hours that 8th graders play sports?
- A 4 h C 2 h
B 2.5 h D 1.65 h

20. What is the value of the expression below?
- $(-64) \div (-16)$
- A 4 C -4
B -1 D -8

21. A quarterback completes 65% of his passes. Out of his next 40 passes, how many can you expect to be completed?
- A 22 passes C 26 passes
B 24 passes D 28 passes
22. The Canadian \$1 coin has a diameter of 26.5 mm. What is the circumference of the coin? Use 3.14 for π .
- A 83.21 mm C 158.64 mm
B 108.64 mm D 166.42 mm
23. Melissa bought a new dishwasher for \$1,200. The manufacturer is offering a 15% rebate. How much will the dishwasher cost after the rebate?
- A \$180 C \$1,020
B \$1,000 D \$1,380
24. What is the area of the figure below?



- A 40 in² C 64 in²
B 54 in² D 72 in²
25. Evan wants to leave an 18% tip for the server at a restaurant. Which expression does **not** show how to calculate the tip if b is the total bill?
- A 0.18b C 0.1b + 0.08b
B $b + 0.18b$ D $b - 0.82b$
26. What is the greatest integer that satisfies the inequality $3x - 4 \leq 8$?
- A 4 C 6
B 5 D 7

Placement Test

27. Harry rolls a number cube. What is the probability that he will roll an even number or a number greater than 4?

- A $\frac{1}{6}$ C $\frac{1}{2}$
B $\frac{1}{3}$ D $\frac{2}{3}$

28. Which of the following equations represents the same linear relationship shown in the table below?

x	2	3	4	5
y	7	9	11	13

- A $y = 2x - 3$
B $y = 2x + 3$
C $y = 3x - 2$
D $y = 3x + 2$

29. The base of a rectangular pyramid has sides 3 feet long and 7 feet long. The pyramid is 4 feet tall. A second, larger pyramid has dimensions that are 3 times the dimensions of the smaller pyramid. What is the difference between the volumes of the two pyramids?

- A 28 ft^3 C 728 ft^3
B 56 ft^3 D 756 ft^3

30. The solution to which inequality is shown in the number line below?

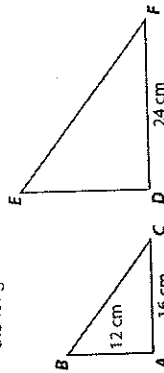


- A $3x + 2 < 4$ C $3x + 2 \geq 4$
B $3x - 2 > 4$ D $3x - 2 \leq 4$

31. Sal bought 3 CDs for \$15.98 each, a computer cable for \$39.95, and a case for his MP3 player for \$24.99. Sales tax is 7%. To the nearest cent, what is the total cost of his purchases?

- A \$120.78 C \$121.79
B \$121.78 D \$130.79

32. The triangles below are similar. What is the length of \overline{ED} ?



- A 17 cm C 19 cm
B 18 cm D 20 cm

33. Which equation represents the data shown in the table below?

Fence Length (y)	100	150	180	240
Number of Posts (x)	11	16	19	25

- A $y = 10x - 1$
B $y = 10(x - 1)$
C $y = 10x + 1$
D $y = 10(x + 1)$

34. Marissa hiked $1\frac{3}{4}$ miles in $\frac{3}{4}$ hours. At that rate, how far can she hike in one hour?

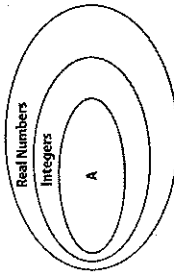
- A $\frac{1}{2}$ mi C $1\frac{5}{16}$ mi
B $\frac{2}{3}$ mi D $2\frac{1}{3}$ mi

35. Nick tosses a standard number cube and spins a spinner. The spinner is divided into four equal sections colored red, blue, green, and yellow. What is the probability that Nick rolls an odd number and spins green?

- A $\frac{1}{8}$ C $\frac{1}{5}$
B $\frac{1}{6}$ D $\frac{1}{4}$

Beginning-of-Year Diagnostic Test

1. Which label could replace "A" in the diagram below?



- A Rational Numbers
B Whole Numbers
C Negative Numbers
D Irrational Numbers

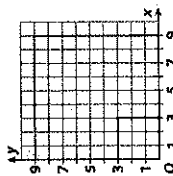
2. Between which two integers does the value of $\sqrt{50}$ lie?

- A 4 and 5 C 8 and 9
B 7 and 8 D 49 and 51

3. Alejandro wrote the number 6,240,000 in scientific notation. Which number did he write?

- A 62.4×10^{-6} C 62.4×10^5
B 6.24×10^{-5} D 6.24×10^6

4. The gray figure is the image of the black figure after a dilation.



- Which represents the dilation?

- A $(x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$
B $(x, y) \rightarrow (2x, 2y)$
C $(x, y) \rightarrow (3x, 3y)$
D $(x, y) \rightarrow (6x, 6y)$

5. The lengths in centimeters of four line segments are shown below.

- 3.1, 3.5, $3\frac{1}{5}$, 4.2

- Which list shows the lengths in order from least to greatest?

- A 3.1, $3\frac{1}{5}$, 3.5, 4.2

- B 3.1, 3.5, $3\frac{1}{5}$, 4.2

- C $3\frac{1}{5}$, 3.1, 3.5, 4.2

- D 4.2, 3.5, $3\frac{1}{5}$, 3.1

6. A figure is dilated by a factor of 3. Which statement about the measurements of the image is true?

- A The perimeter of the original figure is multiplied by 3, and the area is multiplied by 9.

- B The perimeter and area of the original figure are tripled.

- C The perimeter of the original figure is multiplied by 9, and the area is multiplied by 27.

- D The perimeter of the original figure is multiplied by 9, and the area is multiplied by 3.

7. The points A(0, 0), B(1, 1), C(2, 2) and D(3, 3) all lie on the line $y = x$. Ben calculated the slopes of \overline{AB} and \overline{CD} . What can he conclude?

- A The slopes are the same.

- B The slope of \overline{AB} is greater than the slope of \overline{CD} .

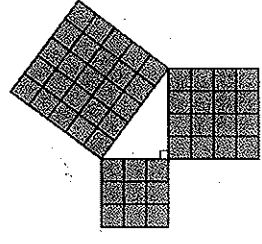
- C The slope of \overline{CD} is greater than the slope of \overline{AB} .

- D The slopes of \overline{AB} and \overline{CD} are negative.

Beginning-of-Year Diagnostic Test

20. What is the solution to the system of equations shown below?

$$\begin{cases} -4x + y = -1 \\ 2x + 2y = -2 \end{cases}$$
- A $(-5, 1)$ C $(0, -1)$
 B $(-1, 2)$ D $(-1, 0)$
21. Ananya drew a cylinder with a radius of 3 inches and a height of 5 inches. She also drew a cone with the same radius and height. Which of the following is true?
- A The volumes are the same.
 B The volume of the cylinder is three times the volume of the cone.
 C The volume of the cone is three times the volume of the cylinder.
 D The volume of the cylinder is four-thirds the volume of the cone.
22. Martin used the diagram below to explain the Pythagorean theorem to a classmate. Which statement did Martin use in his explanation?



- A $3^2 + 4^2 < 5^2$
 B $5^2 + 4^2 = 3^2$
 C $3^2 + 5^2 = 4^2$
 D $3^2 + 4^2 = 5^2$

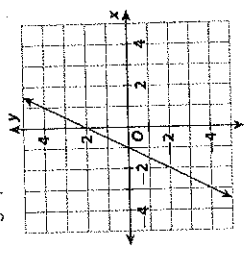
16. Andrew graphed the triangle XYZ by dilating triangle XYZ. Which of the following must be true?
- A The ratios of corresponding sides of triangles XYZ and XYZ are equal.
 B The area of triangle XYZ is greater than the area of triangle XYZ.
 C Triangle XYZ is congruent to triangle XYZ.
 D Triangle XYZ is an isosceles triangle.
17. A cell phone company charges \$50 for the phone plus a monthly service charge of \$30. The equation below describes the total cost y after x months.

$$y = 30x + 50$$
- Which is true of the relationship between x and y?
- A It is linear and proportional.
 B It is linear and non-proportional.
 C It is not linear and proportional.
 D It is not linear and non-proportional.
18. A leopard's speed was timed over a 50-yard distance. The leopard was running 50 miles per hour. Which equation shows the relationship between the distance in miles, y, and time, x, the leopard runs?
- A $y = 50x$ B $y = 60x + 50$
 C $y = 50x + 60$ D $y = 60x$
19. Which expression can you substitute in the indicated equation to solve the system of equations shown below?

$$\begin{cases} 4x + 3y = 4 \\ y = -3x - 2 \end{cases}$$
- A $-3x - 2$ for x in $4x + 3y = 4$
 B $-3x - 2$ for y in $4x + 3y = 4$
 C $4x + 3y$ for x in $y = -3x - 2$
 D $4x + 3y$ for y in $y = -3x - 2$

Beginning-of-Year Diagnostic Test

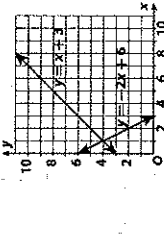
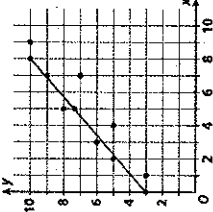
8. What is the slope of the line described by the data in the table below?
- | | | | | |
|---|---|---|---|---|
| x | 0 | 1 | 2 | 3 |
| y | 2 | 4 | 6 | 8 |
- A -2 C $-\frac{1}{2}$
 B $\frac{1}{2}$ D 2
9. Which equation shows the relationship in the table below?
- | | | | | |
|---|---|----|----|----|
| x | 3 | 4 | 5 | 6 |
| y | 9 | 12 | 15 | 18 |
- A $y = x$ C $y = 3x$
 B $y = 2x$ D $y = 4x$
10. Which of the following is the equation of the line graphed below?



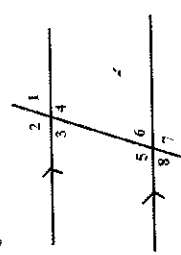
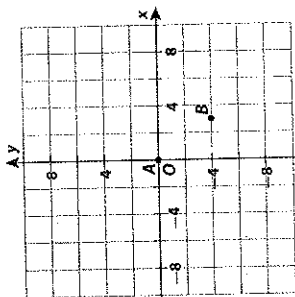
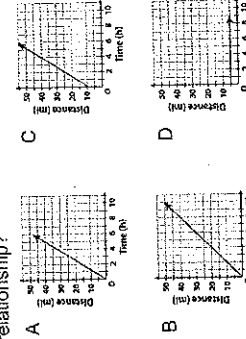
- A $y = -2x + 2$ C $y = -2x - 2$
 B $y = 2x - 2$ D $y = 2x + 2$

11. Carmella sells homemade pies for \$10 a pie. It costs \$2 for the ingredients to bake each pie. Carmella bought a new oven for \$600. How many pies must Carmella bake and sell before she recovers the cost of the oven?
- A 50 C 75
 B 60 D 95
12. Which of the following graphs does not show a linear relationship?
- A B
 C D
13. What is the value of n in the equation:
 $8n + 9 = -n?$
- A -1 C $-\frac{7}{9}$
 B $-\frac{7}{9}$ D 1
14. Which of the following equations represents a proportional relationship?
- A $y = 5x$ C $y = \frac{5}{x}$
 B $y = \frac{1}{2}x + 5$ D $y = x + \frac{1}{2}$
15. Which of the following tables represents a function?
- A
- | | | | | |
|---|----|---|---|---|
| x | 1 | 4 | 4 | 5 |
| y | -2 | 5 | 2 | 6 |
- B
- | | | | | |
|---|---|---|---|----|
| x | 0 | 1 | 2 | 3 |
| y | 2 | 3 | 4 | -3 |
- C
- | | | | | |
|---|---|---|---|---|
| x | 0 | 1 | 2 | 2 |
| y | 1 | 5 | 5 | 8 |
- D
- | | | | | |
|---|---|---|---|----|
| x | 0 | 1 | 2 | 1 |
| y | 8 | 9 | 8 | -4 |

Beginning-of-Year Diagnostic Test

30. The measures of the three angles of a triangle are $(x)^\circ$, $(2x)^\circ$ and $(3x)^\circ$. What is the value of x ?
- A 20 C 40
B 30 D 50
31. What is the solution of the system of equations graphed below?
- 
- A (0, 3) C (1, 4)
B (0, 6) D (3, 0)
32. Under which transformation is orientation not preserved?
- A translation C reflection
B dilation D rotation
33. Michael applied a transformation to triangle ABC to obtain triangle A'B'C'. The two triangles are not congruent. Which of the following could be the transformation Michael applied?
- A translation C reflection
B dilation D rotation
34. Which of the following best describes the number of solutions to the system of equations shown below?
- $$\begin{cases} 2x + y = 3 \\ -4x - 2y = -6 \end{cases}$$
- A no solutions C two solutions
B one solution D infinitely many solutions
35. Which expression represents 64 ?
- A 2^3 C 2^5
B 2^4 D 2^6
36. The vertices of a triangle are located at the points A(0, 1), B(2, 4) and C(3, 0). The triangle is translated 5 units down to obtain triangle A'B'C'. What are the coordinates of the vertices of triangle A'B'C'?
- A A'(0, -4), B'(2, -1), C'(3, -5)
B A'(0, 6), B'(2, 9), C'(3, 5)
C A'(-5, 1), B'(-3, 4), C'(-2, 0)
D A'(5, 1), B'(7, 4), C'(8, 0)
37. Jenya obtained the image of triangle ABC after a dilation with a scale factor of 3. The area of triangle ABC is 15 square centimeters, and its perimeter is 20 centimeters. Which of the following describes the area and perimeter of the new figure?
- A The area is 45 cm^2 and the perimeter is 60 cm.
B The area is 135 cm^2 and the perimeter is 60 cm.
C The area is 45 cm^2 and the perimeter is 180 cm.
D The area is 135 cm^2 and the perimeter is 180 cm.
38. Which of the following best describes the relationship between the two variables in the scatter plot and trend line below?
- 
- A positive linear association
B negative linear association
C no association
D quadratic association

Beginning-of-Year Diagnostic Test

23. A sphere has a radius of 3 centimeters. What is the volume of the sphere?
- A $36\pi \text{ cm}^3$ C $144\pi \text{ cm}^3$
B $72\pi \text{ cm}^3$ D $288\pi \text{ cm}^3$
24. The figure shows two parallel lines intersected by a transversal. Which pair of angles is congruent?
- 
- A $\angle 1$ and $\angle 2$ C $\angle 3$ and $\angle 7$
B $\angle 2$ and $\angle 5$ D $\angle 5$ and $\angle 6$
25. A diagonal shortcut across a rectangular lot is 100 feet long. The lot is 60 feet wide. What is the length of the lot?
- A 40 ft C 80 ft
B 60 ft D 90 ft
26. On the grid below, what is the distance between points A and B?
- 
- A 3 units C 5 units
B 4 units D 25 units
27. The table shows the amount of gas used by a household over time. What is the slope of the data in the table?
- | Number of Weeks | 2 | 3 | 4 | 5 | 6 |
|-----------------------------|----|-----|-----|-----|-----|
| Gas Used (ft ³) | 80 | 120 | 160 | 200 | 240 |
- A -160
B -40
C 40
D 80
28. The equation below can be used to solve which of the following word problems?
- $$2x + 15 = 4x$$
- A The price of four books is \$15 more than the price of two books. What is the price per book?
B The price of two books is \$15 more than the price of four books. What is the price per book?
C The price of four books equals \$15. What is the price per book?
D John bought a certain number of \$2 books and \$4 books for a total of \$15. How many of each book did he buy?
29. Mariana rides her bicycle 5 miles per hour. Which graph represents this relationship?
- 

Beginning-of-Year Diagnostic Test

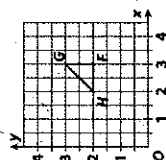
48. A sphere has a radius of 1 inch. Which expression represents the volume of the sphere?

A π C $\frac{4}{3}\pi$
B $\frac{\pi}{2}$ D 2π

49. The mass of Earth in kilograms is about 6×10^{24} , and the mass of the Moon is about 7×10^{22} . What is the sum of the masses of Earth and its Moon?

A 1×10^2 C 6.07×10^{24}
B 7.06×10^{23} D 13×10^{46}

50. In what quadrant would the triangle be if it is rotated 90° clockwise about the origin?



A Quadrant I C Quadrant III
B Quadrant II D Quadrant IV

51. What value of x is the solution to the equation?

$4(x - 1) = 2(x + 1)$
A -2 C 1
B 0 D 3

52. What is the value of x in the solution to the system of equations shown below?

$$\begin{cases} 7x + y = 14 \\ -2x - y = 6 \end{cases}$$

A -7 C 2.4
B 1.6 D 4

- Use the table to answer questions 44–47.
Tina collected data from students about the type of movie they preferred: comedy, drama, or other. The two-way relative frequency table below shows the results of Tina's survey.

	Preferred Type of Movie			Total
	Gender	Comedy	Drama	Other
Boys		0.3	0.1	0.1
Girls		0.2	0.2	0.1
Total		0.5	0.3	0.2

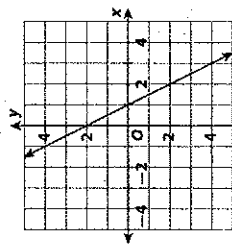
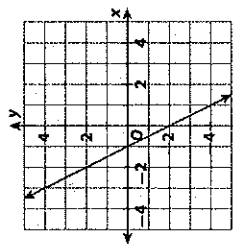
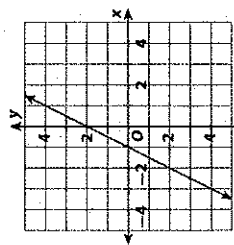
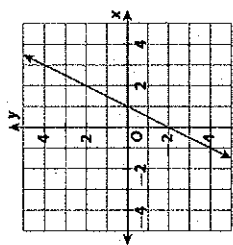
44. What is the joint relative frequency of students surveyed who are boys and prefer comedy movies?
A 10% C 30%
B 20% D 40%
45. What is the joint relative frequency of students surveyed who prefer movies other than comedies or dramas?
A 10% C 30%
B 20% D 40%
46. What is the marginal relative frequency of students surveyed who prefer dramas?
A 10% C 30%
B 20% D 50%
47. What is the conditional relative frequency that a student prefers dramas, given that the student is a girl?
A 10% C 40%
B 20% D 50%

- Use the table to answer questions 39–43.
Marlo collected data from students about whether they watched the latest Super Bowl game. The table below shows the results of Marlo's survey.

	Watched		TOTAL
	Watched	Did Not Watch	
Boys	80	20	100
Girls	40	60	100
Total	120	80	200

39. Of the students surveyed, how many watched the Super Bowl?
A 40 C 120
B 80 D 200
40. Of the students surveyed, how many girls did not watch the Super Bowl?
A 20 C 60
B 40 D 80
41. What is the relative frequency of students that watched the Super Bowl?
A 20% C 40%
B 30% D 60%
42. What is the relative frequency of boys that watched the Super Bowl?
A 33.3% C 75%
B 66.7% D 80%
43. What is the relative frequency of girls that did not watch the Super Bowl?
A 65% C 80%
B 75% D 85%

53. Which graph below shows a linear equation with a positive slope and a negative y -intercept?



#51 - 53 → OPTIONAL WORK